

PHNL031104

11

CLAIMS:

1. A display device, including a display, arranged for detecting an input position on a screen (301) of said display, wherein the screen (301) comprises:
- a first light guide (302), and a light source (308) arranged to emit light (310) into the first light guide (302), the first light guide (302) being optically matched with its surroundings in such way that the light (310) emitted from said light source (308) is confined within the first light guide (302) by means of total internal reflection, and is extracted from the first light guide (302) when a user physically interacts with said screen (301) at said input position;
 - a second light guide (307) arranged so that said user interaction with said screen (301) establishes a contact between said first light guide (302) and said second light guide (307), and
 - a media (309) between the first and second light guides, the media having a lower refractive index than the respective refractive index of the first and the second light guides,
2. A display device as claimed in Claim 1, wherein at least part of the light extracted from the first light guide (302) enters into the second light guide (307) when contact is established between the first and second light guides, said extracted light being confined in the second light guide (307) by means of total internal reflection.
3. A display device as claimed in Claim 1, wherein the display device further comprises detecting means (303) for detecting the light extracted from the first light guide (302) and relating the detecting of the light to said input position.
4. A display device as claimed in Claim 2 and 3, wherein the light detecting means (303) are arranged adjacent said second light guide (307) in essentially the same plane therewith.

PHNL031104

12

5. A display device as claimed in Claim 1, wherein the user physically interacts with the second light guide (307) being made of a flexible material.
6. A display device as claimed in Claim 1, wherein the display device further
5 comprises detecting means for detecting a decrease in light intensity in the first light guide and relating the decrease in light intensity to said input position.
7. A display device as claimed in Claim 1, wherein a surface of the second light
10 guide (507) facing the first light guide (502) is structured so as to prevent adhesion to the first light guide when the contact between the first and second light guides is established.
8. A display device as claimed in Claim 1, wherein the media (509) is a liquid
having a refractive index in the range of 1.30-1.48, the liquid being enclosed in an
expandable container arranged between the first (502) and the second light guide (507).
15
9. A display device as claimed in Claim 8, wherein the liquid (509) comprises
fluorine-based silicon fluids or alcohol/water mixtures.
10. A display device as claimed in Claim 1, wherein the first (502) and second
20 light guide (507) consist of a material having a refractive index in the range of 1.49-1.58.
11. A display device as claimed in Claim 10, wherein the material includes
polymethyl methacrylate.
- 25 12. A display device as claimed in Claim 1, wherein the light source (508)
arranged to emit light (510) into the first light guide (502) emits light having a wavelength
outside the visible spectrum.
13. A display device as claimed in Claim 12, wherein the light (510) of the light
30 source (508) is infrared or near-ultraviolet light.